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PTO/SB/05 (08-00)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.

First Inventor Joseph F. Schrader

Title Inventor

Express Mail Label No.

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ Applicant claims small entity status.
See 37 CFR 1.27.
3. ☒ Specification [Total Pages **16**]
(preferred arrangement set forth below)
 - Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
4. **15** Drawing(s) (35 U.S.C. 113) [Total Sheets **4**]
5. Oath or Declaration [Total Pages **20**]
 - a. ☒ Newly executed (original or copy)
 - b. ☐ Copy from a prior application (37 CFR 1.63 (d))
(for continuation/divisional with Box 17 completed)
 - i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☒ Application Data Sheet. See 37 CFR 1.76

ADDRESS TO:

Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
 - a. ☐ Computer Readable Form (CRF)
 - b. Specification Sequence Listing on:
 - i. ☐ CD-ROM or CD-R (2 copies); or
 - ii. ☐ paper
 - c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement (when there is an assignee) ☐ Power of Attorney
11. ☐ English Translation Document (if applicable)
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☐ Other:

17. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP)

of prior application No. _____ / _____

Prior application information

Examiner

Group / Art Unit.

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

18. CORRESPONDENCE ADDRESS

☐ Customer Number or Bar Code Label

(Insert Customer No. or Attach bar code label here)

or ☒ Correspondence address below

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|---------|--------------------|-----------|--------------|----------|--------------|
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| Country | U.S.A. | Telephone | 315-732-1234 | Fax | 315-735-1659 |

Name (Print/Type)

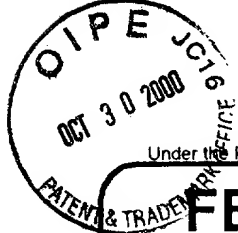
Registration No. (Attorney/Agent)

Signature

Joseph F. Schrader

Date 10-23-2000

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FEE TRANSMITTAL for FY 2000

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT (\$)

Complete if Known

Application Number
Filing Date
First Named Inventor Joseph F Schrader
Examiner Name
Group Art Unit
Attorney Docket No.

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number
Deposit Account Name

- ☐ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17
☐ Applicant claims small entity status. See 37 CFR 1.27

2. ☐ Payment Enclosed:

☐ Check ☒ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

| Large Entity Fee Code | Small Entity Fee Code | Fee Description | Fee Paid |
|-----------------------|-----------------------|------------------------|----------|
| 101 690 | 201 345 | Utility filing fee | \$345.00 |
| 106 310 | 206 155 | Design filing fee | |
| 107 480 | 207 240 | Plant filing fee | |
| 108 690 | 208 345 | Reissue filing fee | |
| 114 150 | 214 75 | Provisional filing fee | |

SUBTOTAL (1) (\$)

2. EXTRA CLAIM FEES

| Total Claims | Extra Claims | Fee from below | Fee Paid |
|--------------------|--------------|----------------|----------|
| 15 | -20** = | X | |
| Independent Claims | -3** = | X | |
| Multiple Dependent | | | |

*or number previously paid, if greater; For Reissues, see below

| Large Entity Fee Code | Small Entity Fee Code | Fee Description |
|-----------------------|-----------------------|--|
| 103 18 | 203 9 | Claims in excess of 20 |
| 102 78 | 202 39 | Independent claims in excess of 3 |
| 104 260 | 204 130 | Multiple dependent claim, if not paid |
| 109 78 | 209 39 | ** Reissue independent claims over original patent |
| 110 18 | 210 9 | ** Reissue claims in excess of 20 and over original patent |

SUBTOTAL (2) (\$)

FEE CALCULATION (continued)

3. ADDITIONAL FEES

| Large Entity Fee Code | Small Entity Fee Code | Fee Description | Fee Paid |
|-----------------------|-----------------------|--|----------|
| 105 130 | 205 65 | Surcharge - late filing fee or oath | |
| 127 50 | 227 25 | Surcharge - late provisional filing fee or cover sheet | |
| 139 130 | 139 130 | Non-English specification | |
| 147 2,520 | 147 2,520 | For filing a request for ex parte reexamination | |
| 112 920* | 112 920* | Requesting publication of SIR prior to Examiner action | |
| 113 1,840* | 113 1,840* | Requesting publication of SIR after Examiner action | |
| 115 110 | 215 55 | Extension for reply within first month | |
| 116 380 | 216 190 | Extension for reply within second month | |
| 117 870 | 217 435 | Extension for reply within third month | |
| 118 1,360 | 218 680 | Extension for reply within fourth month | |
| 128 1,850 | 228 925 | Extension for reply within fifth month | |
| 119 300 | 219 150 | Notice of Appeal | |
| 120 300 | 220 150 | Filing a brief in support of an appeal | |
| 121 260 | 221 130 | Request for oral hearing | |
| 138 1,510 | 138 1,510 | Petition to institute a public use proceeding | |
| 140 110 | 240 55 | Petition to revive - unavoidable | |
| 141 1,210 | 241 605 | Petition to revive - unintentional | |
| 142 1,210 | 242 605 | Utility issue fee (or reissue) | |
| 143 430 | 243 215 | Design issue fee | |
| 144 580 | 244 290 | Plant issue fee | |
| 122 130 | 122 130 | Petitions to the Commissioner | |
| 123 50 | 123 50 | Petitions related to provisional applications | |
| 126 240 | 126 240 | Submission of Information Disclosure Stmt | |
| 581 40 | 581 40 | Recording each patent assignment per property (times number of properties) | |
| 146 690 | 246 345 | Filing a submission after final rejection (37 CFR § 1.129(a)) | |
| 149 690 | 249 345 | For each additional invention to be examined (37 CFR § 1.129(b)) | |
| 179 690 | 279 345 | Request for Continued Examination (RCE) | |
| 169 900 | 169 900 | Request for expedited examination of a design application | |

Other fee (specify)

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

SUBMITTED BY

| Name (Print/Type) | Registration No. (Attorney/Agent) | Telephone |
|-------------------|-----------------------------------|--------------|
| Joseph F Schrader | | 315-732-1234 |
| Signature | | Date |
| Joseph F Schrader | | 10-23-2000 |

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**STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR**

Docket Number (Optional)

Applicant, Patentee, or Identifier: Joseph F. Schrader

Application or Patent No.: _____

Filed or Issued: _____

Title: Inventor

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☒ the specification filed herewith with title as listed above.
☐ the application identified above.
☐ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)


I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

Joseph F. Schrader

NAME OF INVENTOR

NAME OF INVENTOR

NAME OF INVENTOR


Signature of inventor

Signature of inventor

Signature of inventor

9-18-2000

Date

Date

Date

TITLE OF INVENTION

The ED Ergonomically Designed Walker

Inventor: Joseph F. Schrader

22 Pearl St

New Hartford NY 13413

US citizen

Field of Search 135/65, 66, 67, 68, 69, 72

297/6; 272/70.3, 144, 134; 623/27, 28, 29, 30, 31, 32

REFERENCES CITED

U.S. Patents

| | | |
|-----------|--------|----------|
| 4,641,882 | 2/1987 | Young |
| 5,178,595 | 1/1993 | McGregor |
| 5,524,658 | 6/1996 | Schrader |

Foreign Patents

| | | |
|---------|--------|--------------------|
| 2611492 | 9/1988 | France |
| 4034755 | 5/1992 | Germany |
| 2012315 | 5/1994 | Russian Federation |

BACKGROUND OF THE INVENTION

When an injury to the lower leg, knee or foot or a leg amputation occurs, a wheelchair or crutches is the usual means for ambulating. The present invention relates generally to a seated crutch that has handles and is ergonomically designed to promote balance and the natural position of the user.

There are a great number of orthopedic devices such as crutches and canes, the like of which have been satisfactory only to a certain extent. These devices help an injured person ambulate but do not take into account a person's need for natural positioning and balance while walking. When walking, the human body has its mass in motion. When this happens a number of factors come into play. This is best

understood by using the model of a downhill skier. In order for the skier to maintain balance while in motion he needs to have a natural stance with his feet slightly apart and he needs to lean forward slightly, bending the ankles, knees and hips with elbows, wrists and hands forward of the hips. This gives the body a slight forward lean with dynamic joint alignment, promoting better balance.

Medical devices have been developed to facilitate ambulating. U.S. Patent No. 4,641,882 issued February 10, 1987 to John Young and entitled "orthopedic appliances" is for a device with a straight vertical seated post with a leg peg to support the injured leg, one or more handles mounted below the seat and a C-shaped leg receiver. The structure is quite simple by nature. A person sits on the seat, rests his foot on the peg and holds the forward and rear handles. Little consideration has been given to the problem of maintaining balance and keeping the body in a natural, flexible stance. Furthermore the foot peg could be detrimental if non-weight bearing of the injured limb is necessary. The straight shaft, although simple, does not address the need for a tip underneath the injured limb to promote balance and stability.

U.S. Patent No. 5,524,658 issued June 11, 1996 to Joseph F. Schrader and entitled "sit to stand hinged seat walker with pull-up handles" also employs a vertical upright post with a planar seat that locks in a vertical position. The user's injured limb is strapped into the leg receiver. The straight V-shaped post from seat to tip is in a vertical line similar to Young's patent. Both of these devices allow the user to rest on the seat while walking.

It is the objective of this new and improved invention to provide an improved seated frame with raised forward handle grip bars to promote balance and with a leg cradle that the user may or may not strap on. The leg cradle is positioned in such a way that the injured limb helps promote balance. Due to the ergonomic bends in the walker frame, the seat support is offset from the stabilization foot, allowing the user to walk more normally while supporting the injured limb but not necessarily having to rest on the seat at all times. This balancing frame works similarly to a bicyclist riding along above the seat using his leg muscles to support the upper body, which in turn strengthens muscles.

Young and old alike would benefit from this new improved walker frame. Due to the configuration of the leg cradle, the walker can be easily mounted from an upright position. The walker frame is now safer because an open leg frame cradles the injured limb and can be quickly removed if the need should arise.

BRIEF SUMMARY OF THE INVENTION

The present invention relates generally to an ergonomically designed walking system that provides an inexpensive simplified structure consisting essentially of a vertical tubular frame with offset bends, that provides a post and seat with padded handle grips and adjustable padded hand grip bars located at the uppermost end of the walker frame. This tubular frame consists mainly of two tubular support members: the generally V-shaped seat support with handle assembly and the offset frame support post handle assembly located at the upper end with a stabilization foot assembly located at the lower most end. The stabilization foot assembly is locked in position with a safety collar assembly, which minimizes wear on the adjustment button. Located above this assembly are threaded frame spacers, which maintain the proper distance between these two support members giving the walker frame the proper positioning of the seat post over the stabilization foot, which gives the frame the proper lateral balance for the intended user. These threaded frame spacers line up with the welded reinforcement tubes, which are located in both support members. Button head bolts pass through the welded reinforcement tubes and thread into the female threaded frame spacers. The leg cradle support and pivot flange assembly also rely on the button head bolts and the welded reinforcement tubes for strength and rigidity. The adjustable leg cradle support tube with adjustment holes is located at the uppermost end of the leg cradle pivot flange assembly with the pivoting bracket affixed to the bottom of the padded leg cradle. This padded leg cradle may have a Velcro® strap or it may have a safety breakaway buckle.

The ergonomically designed walking frame solves a long-standing problem of being able to ambulate with little effort and at the same time being able to have a strong stable stance with balance that allows for proper joint positioning. The joints, muscles and tendons work in a more natural, comfortable state which promotes faster

healing because of the user's ability to extend and flex both the non injured limb and the injured limb maintaining muscle mass and minimizing atrophy. Being able to have extension and flexion helps to promote healing. The prior art is lacking. This walking device may be used in a number of different ways which include helping to rise from a seated position, as a traditional walker with hands on seat and handle grip bars for stability, climbing and going down stairs holding on to rear of the seat with one hand and grip bar with the other hand with the walker frame facing sideways on the steps. One can have the walker frame on the step above while going upstairs or the step below while going downstairs. It may also be used for walking, straddling the walker frame and seat assembly, resting on the seat only when needed. The walker enables the user to stand at a cabinet and have the widely spaced hand grip bars rest against the vertical surface, giving the user the use of his hands to do various tasks such as preparing food, brushing one's teeth or simply preparing a cup coffee. The object of this invention is to provide a simple to use device that is extremely adjustable for many users of different sizes with varying injuries. This would make it possible for the walker to be rented to those who would only need the device for a short time and then to be recycled back into use for another individual.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the invention, reference is made to the accompanying drawings, in which:

FIG 1 is a side elevational view of the left injured leg walker frame with leg cradle and Velcro® strap or breakaway buckle supporting a phantom person missing left leg below the knee.

FIG 2 is a top view of the left injured limb walker frame.

FIG. 3 is a right side elevational view showing upstanding left injured limb walker frame.

FIG. 4 is a rear elevational of a left injured limb walker frame view of FIG. 3.

FIG. 5 is an enlarged view of the rotation axes of the pivot flange assembly taken along lines 5 – 5 of FIG.6 with letters B, C & D showing rotation directions of pivot flange joint. Letter A shows degree hash marks on leg cradle pivot flange assembly.

FIG. 6 is a left elevational view of FIG. 1 showing a left leg cradle without a Velcro strap or a phantom person.

FIG. 7 is an enlarged view of the padded leg cradle assembly with Velcro® strap taken along lines 7 – 7 of FIG. 6, with letter E showing direction of pivot rotation of leg cradle

FIG. 8 is a rear elevational view of FIG. 4 with wider threaded frame spacers to change the lateral balance point of the walking frame to accommodate a wider stabilization foot. Letter F shows lateral balance point.

FIG. 9 is a right elevational view of a walker frame for a right injured leg with letter J. showing forward balance point of frame over stabilization foot. Letter I shows the padded handgrip bars adjustment rotation.

FIG. 10 is a rear elevational view of FIG. 6 a right injured limb walker with shorter frame spacers. Letter G shows changed lateral balance point from Fig. 8 lateral balance point.

FIG. 11 is an enlarged view of the stabilization foot assembly taken along lines 11 – 11 of FIG. 10.

FIG. 12 is a rear elevational view of a right injured limb walker with a right leg cradle assembly. Letter H shows lateral balance point to the left side of the stabilization foot.

FIG. 13 is a side elevational view of a person walking with left leg supported in a leg cradle.

FIG. 14 is a side elevational view of a person walking with the left injured walker frame with no leg cradle. The phantom person is using selective weight bearing on the left injured limb having normal extension flexion of both legs

FIG. 15 is a side elevational view of a person missing the lower portion of their leg using the left injured limb walker frame maintaining normal extension flexion of right leg.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings in greater detail, Fig. 1 shows an improved ergonomically designed walker frame 51 made according to the invention supporting a

phantom person 42, with their left leg missing below the knee 43, coming to rest on stabilization foot 25, of walker frame 51. The individual is in a natural comfortable stance with hands 47, gripping padded handgrip bars 54, similar to that of U.S. Pat. No. 4,641,882. This improved walker frame facilitates the ability to control the balance of the individual in relationship to the stabilization foot 25. It should also be noted that the elbows 45, are at a comfortable distance apart with the shoulders 40, facing the direction of movement with a slight forward lean as one rests upon the seat assembly 64.

Referring now to Fig. 2, the walker is shown in a top view, with an Ed (stands for ergonomic design) walker frame 51, and shows the relationship between foot stabilization assembly 25 and seat assembly 64. The walker frame 51 is comprised principally of two tubular parts. An ergonomically configured offset frame support post 60 has a foot assembly 25, at lower end and padded handgrip bar 54 at the top vertical end. The offset seat post 61 has opposing hand grip bar 54 located at the most top vertical end.

Fig. 3 is a right side elevational view showing one of two padded handgrip bars 55 located at the upper end of support post 60. The adjustable padded handgrip bars 54 are affixed to the tapered top horizontal end of support post 60 and the V-shaped seat support 61 with the cap screw 56 located at the lower end of padded handgrip bars 54. The offset seat support post 61 is generally a V shaped tubular structure with bicycle seat 64 and is mounted on the highest vertical tapered end of said post with a bicycle seat adjustable mounting bracket 62, which clamps on the forward and aft adjustable seat bars 63.

Fig. 4 is a rear elevational view showing padded handgrips 55 located on the upper horizontal end of the offset seat post and handle assembly 61, with both offset frame support post 60 & offset seat post and handle assembly 61 being formed of lightweight high strength tubing such as aluminum, stainless steel, titanium, or a lightweight moldable composite material. A bicycle seat assembly 64 is mounted to the offset seat post and handle assembly 61. The offset ergonomically formed frame support post 60 with stabilization foot assembly 25 and V shaped seat support post with handle assembly 61 are held apart to a desired distance by threaded frame

spacers 59, to achieve proper lateral distance between offset frame support post 60 & offset seat post and handle assembly 61.

Fig.5 is an enlarged, detailed view taken on lines 5—5 from Fig. 6 but not showing the padded leg cradle assembly 33. The offset frame support post 60 and the V-shaped offset seat post and handle assembly 61 each have welded reinforced mounting tubes 58 spaced at equal distances apart to give added strength. Button head bolts 57, protruding latterly through these tubes into threaded frame spacers 59, can be tightened to the desired foot pounds without crushing or distorting frame support post 60 and handle assembly 61. The leg cradle pivot flange with offset bolt assembly 27 attaches to seat support 61 using a lengthened button head bolt 57 protruding through welded reinforcement tubes 58 located on offset seat support post 61, adjacent to gusset 71. Letter A distinguishes degree markings and hash marks on the leg cradle pivot flange with offset bolt assembly 27. Letter B shows the lateral rotation of the leg cradle pivot flange with offset bolt assembly 27. Letter C shows the vertical rotation of the leg cradle pivot flange with offset bolt assembly 27. The leg cradle adjustment barrel with holes 29 is inserted into the pivot cap flange 28 and locked into the desired rotation by setscrew 50. Letter D shows the rotation axis of the leg cradle adjustment barrel 29.

Fig. 7, taken from Fig. 6 along lines 7-7 is an enlarged mainly left side view showing in greater detail a padded leg cradle assembly 33, with optional Velcro® strap 34 in use in Fig. 1. This individual is affixed to the walker frame 51, which in some instances can be beneficial such as in climbing stairs. To secure frame to the individual, similar to that of U.S. patent 5,178,595, the improved leg cradle 33, has a pivoting bracket 32, attached by means of the button head bolt and Nylock® nut assembly 31 to leg cradle inner support tube with height adjustment spring button assembly 30. This tube is telescoping and is locked in position by a spring button assembly 35. As seen in Fig. 7, leg cradle support bracket 32 pivots at the top of inner support tube 30, with travel illustrated by letter E.

Fig. 8 is a rear elevational view of left injured limb walker frame 51, with larger threaded frame spacers 59. Reference line F shows the center of balance closer to the center of the stabilization foot assembly 25.

Fig. 9 shows a side elevational view of a walker 51 for a right leg injury. Reference line J. shows the vertical center balance point of the seat assembly 64 to stabilization foot assembly 25 forward of foot support tube 70.

Fig. 10 shows a rear elevational view of a left injured limb walker frame 51 with a left padded leg cradle assembly 33 with smaller threaded frame spacer 59. Reference line G. shows the vertical center balance line further to the right of the stabilization foot assembly 25 than shown in Fig. 8.

Fig. 11 refers to construction details view. Certain subassemblies of the invention show a fragmentary vertical section of an enlarged view. The series of height adjustment holes 65 spaced at equal distances, protruding through lower end of offset frame support post 60 are readily seen in U.S. Patent No. 5,178,595. FIG. 11 shows safety knob with threaded shaft 67, threading through safety collar assembly 66, diagonally passing through equally spaced height adjustment holes 65, in offset frame support post 60, also passing through equally spaced foot support tube holes 26, in foot support tube 70. This presses up against the inner support surface of tube 70, which presses outer surface of tube 70 to inner wall of offset frame support post 60, locking the two tubes together and giving a second means of fixing both tubes 60 and 70 to a desired height. Tightening the control knob 67 by hand can eliminate a slight amount of play between offset frame support post 60 and foot support tube 70. This will eliminate a clicking noise, which would be produced between these two support tubes and will minimize wear on the height adjustment button 68 thus promoting safety.

Located directly below in the next two aligned holes 26 & 65, is the height adjustment button and spring assembly 68 to accommodate different height requirements. Located at the end of support tube 70 is support tube cap 69, which is used as a smoothing device between the two tubular sections, frame support post 60 & foot support tube 70. It is also a protective stop by not allowing locking safety collar assembly 66 to slide off when loosened for adjustment, which promotes safety.

Fig. 11 shows greater detail of the stabilization foot assembly 25, which is comprised of a foot support tube 70, that is welded to upper stabilization plate 72, and one or more gussets 71 by means of a weld at right angles to achieve a 90 degree relationship between foot support tube 70 and upper stabilization plate with threaded

holes 72. It should be noticed that the tube 70 has been positioned forward of the rear trailing edge of plate 72, and centered similar to the proportions of the human foot. Located below mounting plate 72 is a thick layer of foam 23 which can vary in density to accommodate the weight of the injured individual. Located below foam 23 is the lightweight titanium or like stabilization plate 24, which is affixed to rubber tread with reinforcement cord 22, by means of contact cement or the like. The rubber tread with reinforcement cord 22 has four mounting holes, two in front and two in the rear. Rubber tread mounting bars 73, with equally spaced matching holes are placed over rubber tread 22. Mounting bar cap screws 21, pass through these aligned holes and thread into matching threaded holes in upper mounting plate 72. The rubber treads with cord wraps from the front to the rear of foot assembly 25, encapsulating the stabilization plate and foam in a tight, flat and secure manner. This stabilization foot assembly 25 can be made in varying sizes to facilitate a wider, more stable base for some users or a smaller, more lightweight base for the experienced user.

Fig. 12 shows a rear elevational view of a right injured limb walker frame 51, with reference line H showing the vertical balance point to the left side of stabilization foot assembly 25. It is imperative that the vertical balance point is adjusted closer to the uninjured limb that is used for ambulating. The walker frame then supports more weight under the injured limb with stabilization foot assembly 25 underneath the vertical balance point making it possible to move walker stabilization foot assembly 25 further away from the uninjured foot. This helps improve the walker's performance by offsetting the balance slightly, making the walker lean towards the uninjured foot while ambulating

Fig. 13 shows a phantom person using the improved ergonomically designed walker frame 51, with left lower leg demonstrating flexion 53, below the knee 43, with a leg cradle with no Velcro® strap. One is able to mount the walker without attaching a strap and to ambulate without being strapped in, but merely resting upon leg cradle without being restrained. This new improved feature makes it far safer to get rid of the walker in case of fall.

Fig. 14 shows a phantom person using a left injured leg ergonomically designed walker frame 51, with no leg cradle, showing that it is possible to have extension 52 of

lower leg and flexion of both legs with normal range of motion of both legs, at the same time being able to selectively weight bear on the left injured leg.

Fig. 15 shows a phantom person using a left injured leg ergonomically designed walker frame 51, with leg cradle supporting a partial leg amputated below the knee with no Velcro® strap or breakaway buckles. The phantom person is standing at a normal height resting comfortably on the stabilization foot maintaining good balance. Fig. 1, 13, 14 and 15 all show phantom person demonstrating proprioception of the stabilization foot by means of wrist 39 and hand 47.

It should be understood that while the invention has been described for reference to the structure disclosed here in, it is not confined to the details set forth, and this application is intended to cover such modifications or changes as may be made from the forgoing without departing from the spirit and scope of the following appending claims.

CLAIMS

I Claim:

1. An ergonomically designed walking frame comprising:

An elongated upstanding vertical tubular frame assembly with offset bends with attached support post and seat with padded handle grips. Said adjustable padded handgrip bars are located at the uppermost forward end of said walker frame. This said tubular frame consists mainly of two tubular support members: the generally V-shaped seat support post with said handle assembly and the said offset seat support post located at the upper most vertical end. The said offset frame support post assembly with height adjustable stabilization foot assembly located in lowermost vertical end is comprised of energy absorbing and releasing foam and said stabilization plate for added torsion stability with replaceable tread. The stabilization foot assembly is locked in position with a safety locking collar assembly, has said safety knob with threaded shaft which compress tightly against stabilization foot support tube and offset frame support post this, minimizes wear on the said height adjustment spring button. Located above this safety collar assembly are threaded frame spacers which vary the distance between the two support members by holding them apart to the proper distance giving the said walker frame the proper vertical positioning of the said offset seat post over the said stabilization foot which can also vary in size. Because of these different length frame spacers one standard frame can be adjusted to many different sized people.

These said threaded frame spacers line up with the said welded reinforcement tubes, which are located in both of said support members. Button head bolts pass through the said welded reinforcement tubes and thread into the said female threaded frame spacers. The said leg cradle support and pivot flange assembly with degree markings for consistent adjustment secured with offset button head bolt also offers a vast degree of adjustable pivoting and rotating of said pivot flange joint that positions the injured limb in the said leg cradle for good balance. The said button head bolts can attach the pivoting leg cradle flange to the right or left offset frame ergonomic walker. The said welded reinforcement tubes for strength and rigidity are located in the seat support post and the frame support post. The said adjustable leg cradle support tube with said spring button assembly has a pivoting bracket affixed to the bottom of the

said padded leg cradle. This padded leg cradle may have a Velcro ®strap or a safety breakaway buckle.

The user holds the padded handle grip bars and straddles the seat in an upstanding position. The user will position the walker frame to the perineal area and then place their injured limb in the leg cradle. Depending on the type of injury the ergonomic walker frame allows the user to non weight bear or to selectively weight bear on the injured limb or prosthesis also allowing for extension and flexion of said limb without applying full weight to the said limb. The ergonomically designed walking frame promotes a natural body position and stance with proper placement of joints and body parts thus promoting increased balance and stability utilizing proprioception of the said stabilization foot by means of one's wrists and hands. The user's position on said frame promotes freedom to walk in a more natural way. This said frame always returns the user's uninjured foot to the traveled surface. The stabilization foot is placed under the affected limb in such a way as to support this side of the body mass by the said frame's offset bends. The user has a tendency to move forward on the front of the stabilization foot much like a human foot, which provides a stable comfortable means for ambulating, without the feeling of falling backwards. Because the weight is always focused forward of the heel of said stabilization foot, less energy is expended on ambulating and it is done with more comfort and stability. This said stabilization plate is a rigid flat structure backed up by dense foam, which absorbs the shock of the stabilization foot when it meets the travel surface. The stabilization plate also releases energy from the foam when the stabilization foot leaves the travel surface, helping to conserve energy. One's uninjured foot, hands, arms and the gluteus maximus all assist in supporting one's weight. The said leg cradle supports the injured limb or partial limb. The said padded grip bars give said person proper dynamic joint alignment facilitating proprioception and more stabile foot placement while ambulating. This said ergonomically designed frame solves a long standing problem of being able to ambulate with little effort and at the same time being able to have a strong stable stance with balance that allows for proper joint positioning. Your body becomes properly aligned using the said frame. The joints, muscles and tendons are working in a more natural position, which promotes faster healing because of the user's ability to be able to extend and flex the uninjured limb and

when appropriate the injured limb, helping to maintain muscle mass and lessening atrophy. Being able to have extension and flexion helps to promote healing. The walking device may be used in a number of different ways which include helping assisting one to rise from a seated position, using like a traditional walker with hands on seat and handle grip bars for stability, going up or down stairs, and straddling the walker frame and seat assembly and resting upon seat. The user is able to stand at a cabinet and have the widely spaced hand grip bars rest against the vertical surface giving the user the use of his hands to do work such as preparing food, brushing one's teeth or simply pouring a cup coffee.

While the ergonomically designed walker frame provides support for one's physical structure, it also is an exercise device that has far-reaching benefits. This device makes it possible for people that have had a leg amputation to be able to ambulate while they're waiting for their prosthesis to be fitted making it possible for the remaining leg to maintain physical strength and flexibility. A more positive mental state is possible as the user is able to stand at the same height as before the amputation occurred. This device may also be used after an infection in the injured stump during which time the prosthesis cannot be used. Previously the amputee had to rely on a wheelchair or crutches until the swelling went down and the infection was gone. This can be devastating mentally. The ergonomic walker frame provides a better means for ambulation and frees up the hands to do meaningful work when resting alongside a vertical surface.

An individual who has lost a limb and who is not a good candidate for prosthesis may use the ergonomic walking frame for an extended period of time. It would give the individual a user-friendlier ambulatory device than crutches with less physical strain on the upper body.

2. The walker as claimed in claim 1 wherein the said padded hand grip bars are adjustable by means of the cap screws located at the lower end of the grip bar, which allows for tightening around the tapered tubular walker frame hand grips, located at the uppermost forward ends of the said offset frame support post and said offset seat support post extending outwardly from two opposite sides of said walker in selected

axial alignment providing a means for improving proprioception of said stabilization foot by means of hands and wrists joints improving balance.

3. The walker as claimed in claim 1 wherein said adjustable seat assembly at top vertical end of V-shaped seat support post with offset positioned seat provides lateral and forward and aft balance of said person's mass over said stabilization foot.

4. The walker as claimed in claim 1 wherein threaded frame spacers vary in length depending on the lateral balance required for the individual user and the width of the stabilization foot providing a means for altering the lateral balance of the frame.

5. The walker as claimed in claim 1 wherein a safety locking collar with control knob and bolt assembly tightens firmly against inside of said stabilization foot support tube and the offset frame support post, providing a second means of attachment between these two posts, and further minimizing wear on said height adjustment spring button.

6. The walker as claimed in claim 3 wherein said offset frame support post with stabilization foot assembly works in conjunction with the seat support post assembly to provide lateral balance providing a means for the uninjured foot to return to the traveled surface predictably.

7. The walker as claimed in claim 1 wherein said stabilization foot is comprised of energy absorbing and releasing foam with a stabilization plate between foam and rubber tread for improved torsion stability promotes lateral forward and aft stability.

8. The walker as claimed in claim 1 wherein welded reinforcement tubes provide a means for strengthening the support tube and the seat support tube, providing additional strength for attaching said support members together without distorting these tubular structures.

9. The walker as claimed in claim 1 wherein the said leg cradle support pivot flange assembly with degree markings, cap head bolts and nut assembly with leg cradle support tube assembly are attached to walker tubular frame by means of button head bolts which thread through the reinforcement tubes into female frame spacers.

10. The walker as claimed in claim 1 further comprising the said adjustable leg cradle support tube with spring button assembly located in the leg cradle adjustment barrel with holes for height adjustment of said leg cradle support tube, attaches to pivoting leg

cradle bracket at uppermost end of leg cradle support tube by means of said button head bolts and Nylock® nut.

11. The walker as claimed in claim 1 wherein the said padded leg cradle which supports the injured limb may have no strap or a Velcro® strap or a breakaway safety buckle strap to secure one's injured limb or stump to walker frame, depending on one's injury.

12. The walker as claimed in claim 1 wherein this said ergonomically designed walker frame with stabilization foot promotes natural joint positioning with extension and flexion of leg joints providing a more stable and natural stance, helping to minimize atrophy of lower limb extremities and thus decreasing rehabilitation time.

13. The walker as claimed in claim 1 wherein this said ergonomically designed walker frame with stabilization foot promotes natural joint positioning with extension and flexion of leg joints providing a more stable and natural stance can in selected cases allow for partial weight bearing and through adjustments an increasing amount of weight bearing as indicated thus decreasing or eliminating atrophy during healing while being very mobile.

14. The walker as claimed in claim 1 wherein this said ergonomically designed walker frame with stabilization foot promotes natural joint positioning with extension and flexion of leg joints providing a more stable and natural stance is important for all patients but particularly for those who work or are involved in sports making an earlier return to activity's possible.

15. The walker as claimed in claim 1 wherein this said ergonomically designed walker frame with stabilization foot is more stable than traditional crutches because the user has more control over the device by using the grab bars thus minimizing slipping of the stabilization foot.

* * * * *

ABSTRACT

A bicycle seat supported generally by a tubular V-shaped configuration with an offset seat post to allow for padded leg cradle supports, padded handles and adjusting handle grip bars. The bottom of the ergonomically designed offset walker frame has an adjustable rubber tip for height adjustment. The seat is on a fixed top post. The position can be adjusted up and down in height, forward and back and front to back. Using the handle grips the user can straddle the bicycle seat and rest the injured limb on the leg cradle supports without having to strap the injured limb to the walker frame. The walker frame has been ergonomically designed for balance. The tubular construction is comprised of a number of offsetting bends and spacers, which offset the leg cradle to the proper distance for comfort and balance. The padded handles are forward of the seat with rotating handle grip bars on the ends of the padded handles which gives the user more comfort and better control when using the walker frame making it possible to maintain better balance. The hands and wrists keep the frame in a vertical position and maintain control over the stabilization foot for better balance. The offset bends in the frame move the stabilization foot out of the way of the good leg and foot making for a less cumbersome and more comfortable natural stance. The stabilization foot is under the injured limb giving the injured user better balance, which improves comfort and makes for a simple easy to use walking device.

FIG.1

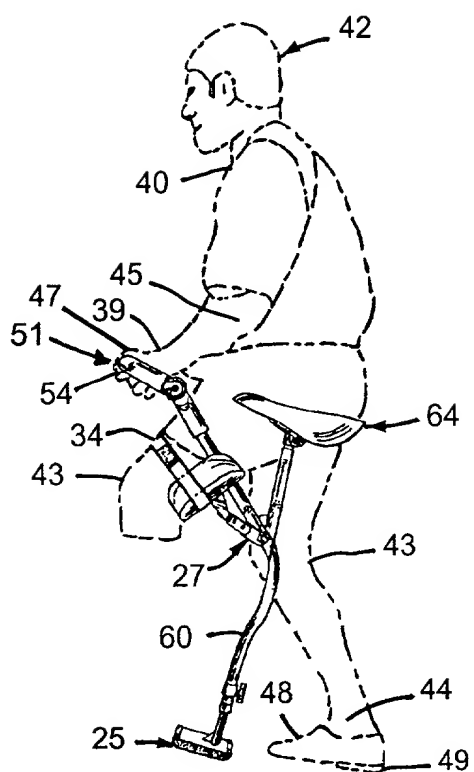


FIG.2

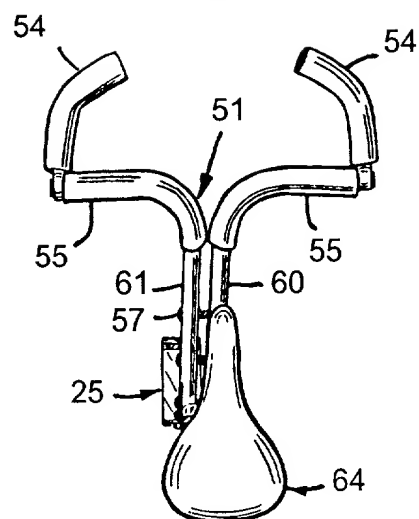


FIG.3

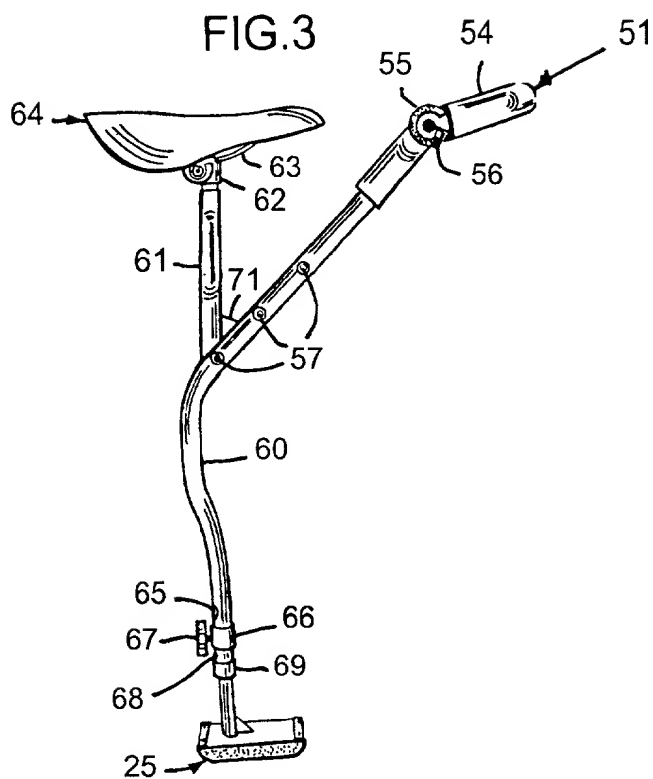


FIG.4

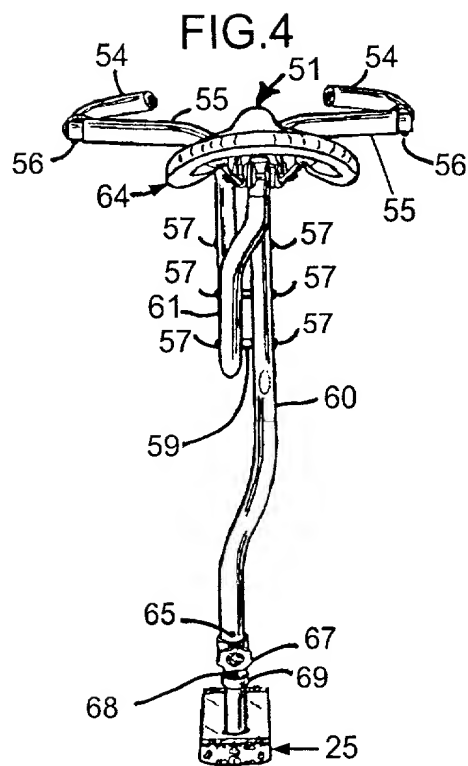


FIG.5

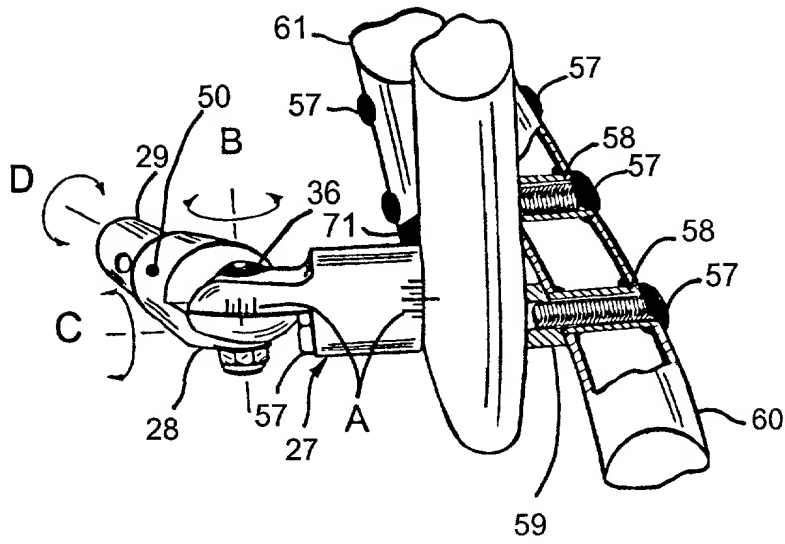


FIG.6

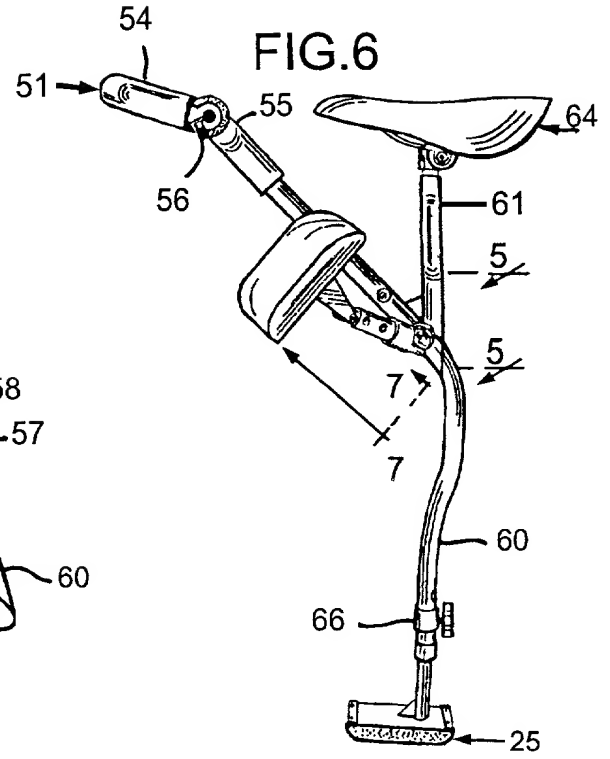


FIG.7

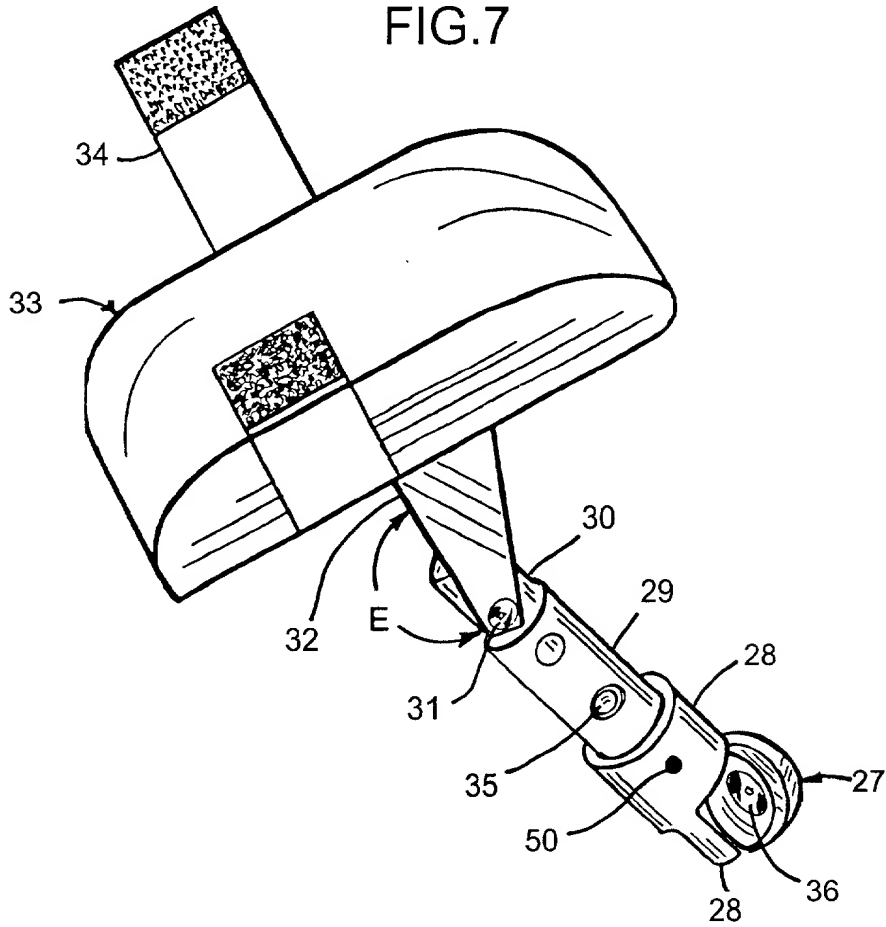
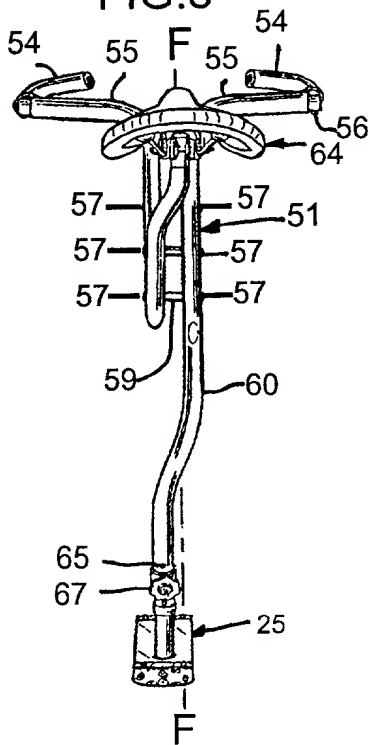


FIG.8



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FIG.9

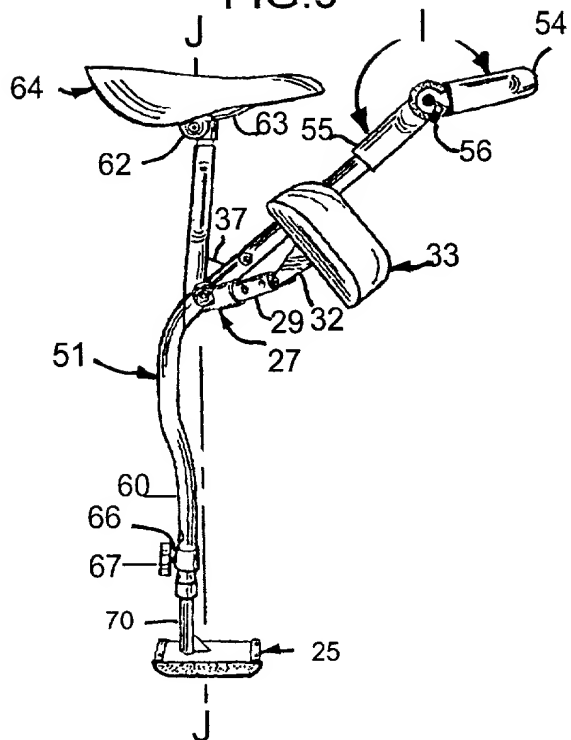


FIG.11

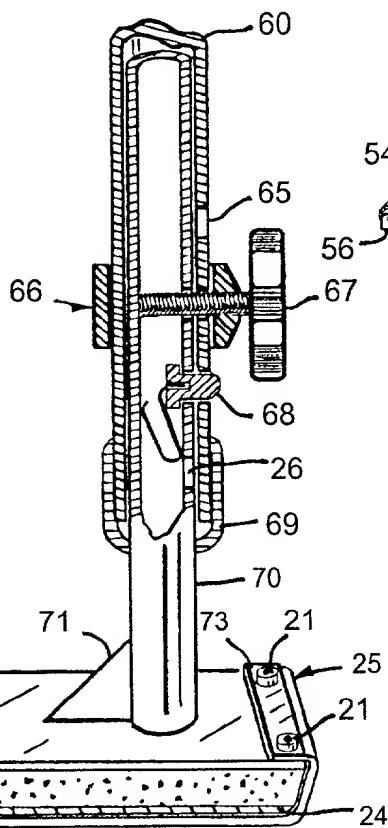


FIG.10

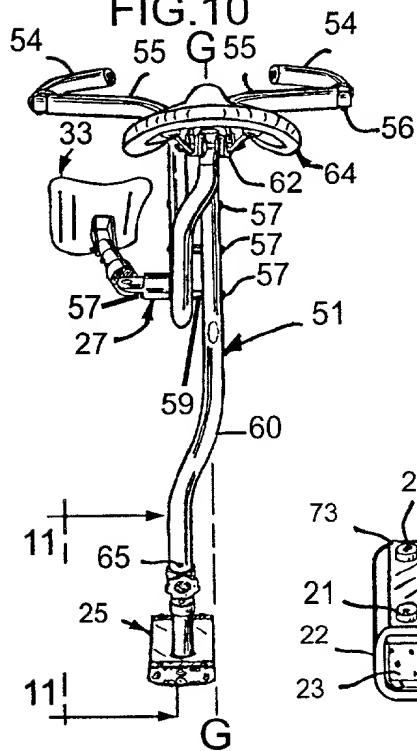


FIG.12

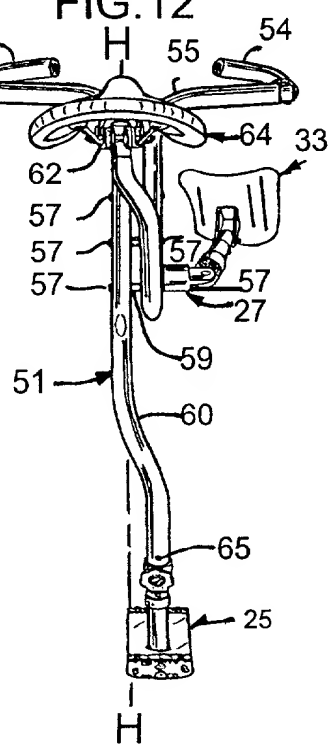


FIG.13

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FIG.14

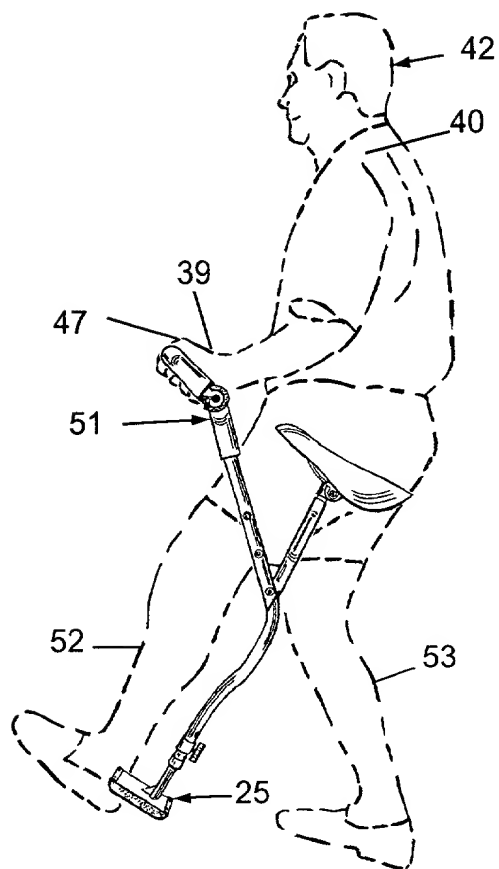
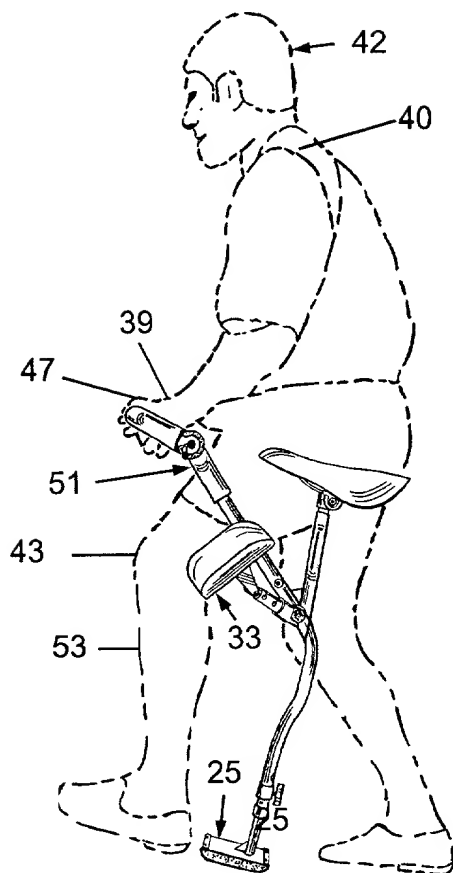
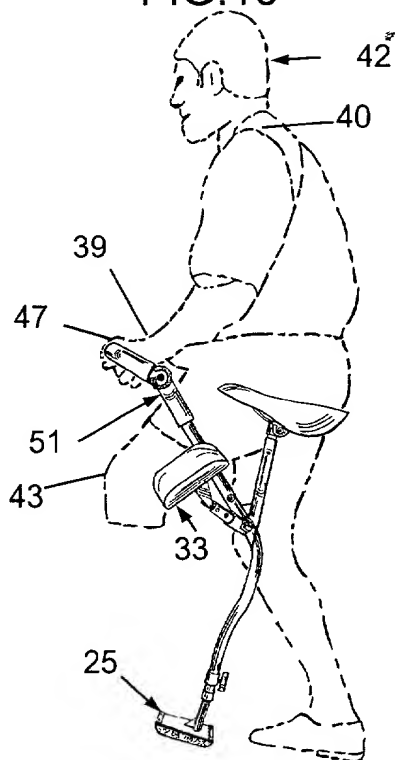


FIG.15



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| U.S. Parent Application or PCT Parent Number | Parent Filing Date (MM/DD/YYYY) | Parent Patent Number (if applicable) |
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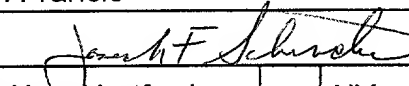
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| Given Name (first and middle (if any)) | | | Family Name or Surname | | | | |
| Joseph Francis | | | Schrader | | | | |
| Inventor's Signature |  | | | | Date | 10-23-00 | |
| Residence: City | New Hartford | State | NY. | Country | U.S.A. | Citizenship | U.S.A. |
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